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# RTD UPDATES: Changes in Farmland Values

## Data updates from the Resources and Technology Division

Resources and Technology Division  
Economic Research Service  
U.S. Department of Agriculture

August 1993

### Farmland Values To Rise 1.2 Percent from July 1993 to July 1994

The Survey Research Laboratory at the University of Wisconsin surveys a national panel of rural appraisers to collect information on farmland values for ERS. Each quarter, the appraisers are asked about their opinion on changes in farmland values over the previous quarter and the previous year, and their expectations of changes over the next quarter and the next year. The data are regional and are aggregated into U.S. level. The regions comprise the 48 States. The reported changes have generally corresponded to expected changes in farmland values.

#### Expected Annual Rates

The annual rate of appreciation in U.S. farmland values expected by the national panel of appraisers trended downward from 1989 until 1991, declining to 0.4 percent for the year beginning January 1991. The expected annual rate has since trended upward to 2 percent in April but dropped to 1.2 percent in the July survey.

#### Reported Annual Rates

The reported annual rate of appreciation in farmland values trended downward from 1989 until 1992, dropping to 0.9 percent for the year beginning April 1991. The annual rate of change in U.S. farmland values has since increased, and stabilized at about 2 percent for the last 3 surveys.

#### Quarterly Rates

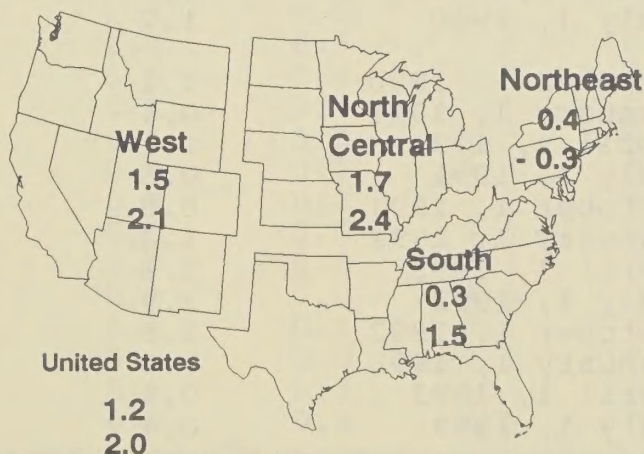
The cycle of quarterly rate of appreciation matches the cycle of annual rate of change in U.S. farmland values. The expected and the reported quarterly rates trended downward from the fourth quarter of 1989 through the first quarter of 1991, reaching the low of -0.1 percent. Since then, both quarterly rates have trended upward. U.S. farmland values increased by 0.5 percent in the second quarter of 1993 and the panel expects a 0.4-percent increase during the third quarter of 1993.

Further information: John Jones, RTD (202) 219-0425.

### Data Releases Planned

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U.S. Farmland Values Expected to Average 1.2 Percent Higher from July 1, 1993 to July 1, 1994



Top number: Expected percentage change from July 1993 to July 1994

Bottom number: Reported percentage change from July 1992 to July 1993



Table 1. Reported annual percentage changes in farmland values

For the year beginning	Northeast	North Central	South	West	U.S.
			Percent		
May 1, 1988	2.4	10.1	3.7	5.0	6.4
August 1, 1988	2.8	9.5	5.5	4.1	6.5
October 1, 1988	2.8	7.6	4.7	4.8	5.8
January 1, 1989	4.2	6.8	3.0	4.2	4.8
April 1, 1989	5.3	7.3	2.2	4.8	5.0
July 1, 1989	1.6	7.3	2.1	5.0	4.9
October 1, 1989	2.6	7.0	2.4	4.4	4.7
January 1, 1990	3.0	5.1	1.0	3.3	3.3
April 1, 1990	2.2	2.3	1.3	2.6	2.1
July 1, 1990	0.4	4.2	1.2	3.2	2.9
October 1, 1990	1.6	1.8	-0.2	1.6	1.1
January 1, 1991	0.5	2.9	-1.2	1.8	1.3
April 1, 1991	0.5	3.1	-2.3	1.5	0.9
July 1, 1991	0.6	2.5	1.0	1.8	1.8
October 1, 1991	1.5	2.7	-0.2	1.7	1.5
January 1, 1992	0.2	2.6	0.3	3.1	2.0
April 1, 1992	-0.2	2.8	1.7	2.2	2.2
July 1, 1992	-0.3	2.4	1.5	2.1	2.0

Table 2. Expected annual percentage changes in farmland values

For the year beginning *	Northeast	North Central	South	West	U.S.
			Percent		
May 1, 1988	5.6	5.4	-1.3	3.7	3.6
August 1, 1988	7.4	4.4	2.3	3.2	4.6
November 1, 1988	5.2	5.2	2.9	3.4	4.0
May 1, 1989	2.4	4.5	2.4	3.3	3.4
August 1, 1989	1.4	4.8	2.7	3.0	3.5
October 1, 1989	2.3	5.1	3.7	3.9	4.2
January 1, 1990	6.8	2.5	3.1	3.6	3.1
April 1, 1990	4.7	4.6	2.5	4.4	3.9
July 1, 1990	1.7	4.7	1.5	3.0	3.2
October 1, 1990	3.1	3.2	0.1	2.3	2.0
January 1, 1991	0.4	0.2	-0.7	1.7	0.4
April 1, 1991	1.1	2.1	1.6	2.0	1.9
July 1, 1991	0.5	1.7	-1.1	1.9	0.9
October 1, 1991	0.8	1.3	1.3	1.2	1.3
January 1, 1992	1.3	1.1	0.6	1.6	1.1
April 1, 1992	1.6	2.1	1.2	1.8	1.8
July 1, 1992	1.9	0.8	0.5	1.5	1.0
October 1, 1992	1.5	0.8	-1.2	1.0	0.3
January 1, 1993	1.6	2.0	0.6	2.2	1.7
April 1, 1993	0.5	2.6	1.7	1.7	2.0
July 1, 1993	0.4	1.7	0.3	1.5	1.2

\* The date when expectations about the following 12 months were formed.  
Source: The Survey of Rural Appraisers, Econ. Res. Serv., USDA.



Table 3. Reported quarterly percentage change in farmland values

Quarter		Northeast	North Central	South	West	U.S.
		Percent				
May 1 - July 31	1988	2.6	3.5	-3.9	3.0	1.2
August 1 - October 31	1988	1.8	2.8	1.0	0.6	1.6
February 1 - April 30	1989	0.4	3.6	1.4	1.4	2.2
May 1 - July 31	1989	0.1	1.6	1.6	0.8	1.3
July 1 - September 30	1989	0.4	1.5	0.4	1.4	1.1
October 1 - December 31	1989	1.0	1.6	0.3	1.1	1.1
January 1 - March 31	1990	1.7	1.6	0.7	1.0	1.2
April 1 - June 30	1990	0.1	1.5	0.3	0.5	0.8
July 1 - September 30	1990	0.8	1.2	0.5	0.8	0.9
October 1 - December 31	1990	-0.5	0.1	0.3	0.1	0.1
January 1 - March 31	1991	0.3	-0.8	0.3	0.1	-0.1
April 1 - June 30	1991	0.0	0.5	-0.1	0.3	0.2
July 1 - September 30	1991	0.4	-0.2	-0.3	0.1	-0.1
October 1 - December 31	1991	0.0	0.0	-0.2	0.3	0.0
January 1 - March 31	1992	0.0	0.4	-0.3	0.3	0.2
April 1 - June 30	1992	0.4	0.0	0.1	0.1	0.1
July 1 - September 30	1992	0.3	0.7	0.0	0.2	0.3
October 1 - December 31	1992	0.4	0.5	-0.1	0.4	0.3
January 1 - March 31	1993	-0.3	1.3	0.4	0.4	0.7
April 1 - June 30	1993	0.2	0.5	0.5	0.3	0.5

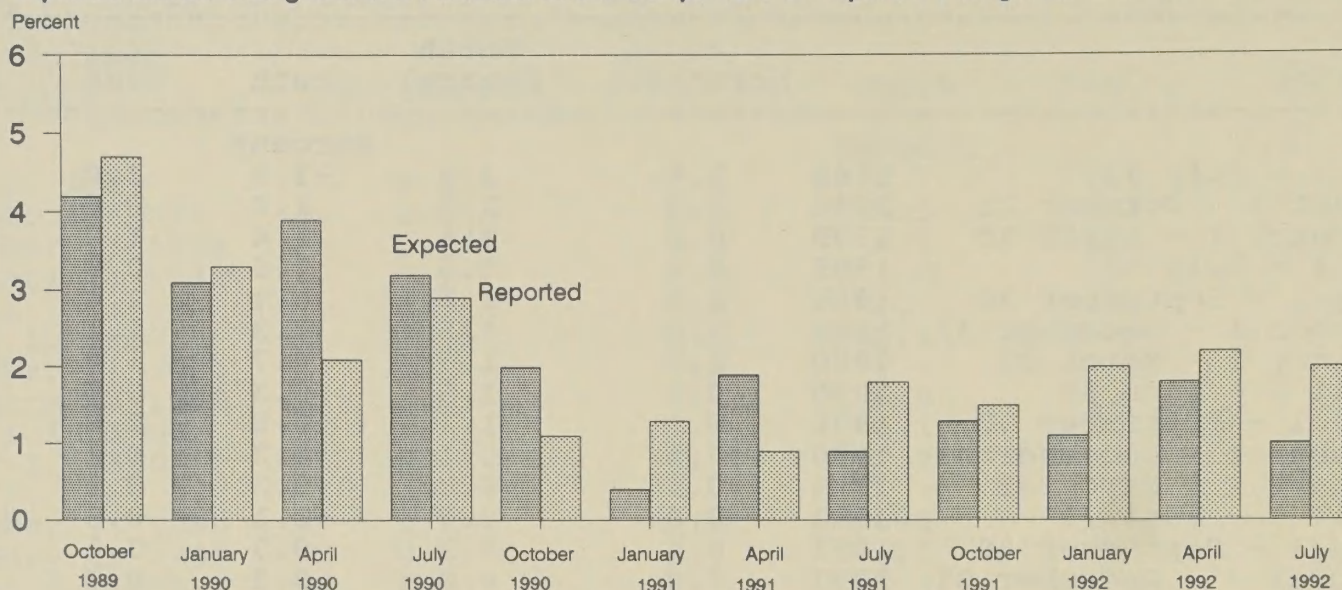
Table 4. Expected quarterly percentage change in farmland values

Quarter		Northeast	North Central	South	West	U.S.
		Percent				
May 1 - July 31	1988	2.0	2.8	-1.6	0.5	1.0
August 1 - October 31	1988	3.1	-1.4	-2.7	1.9	0.9
Nov. 1, 1988 - Jan. 31	1989	1.5	1.7	0.2	0.7	0.9
May 1 to July 31	1989	0.1	1.0	0.3	0.5	0.6
August 1 - October 31	1989	0.1	1.2	0.2	0.6	0.7
October 1 - December 31	1989	0.4	1.6	0.8	1.0	1.2
January 1 - March 31	1990	1.4	0.9	0.3	0.6	0.7
April 1 - June 30	1990	0.8	1.1	0.5	0.8	0.8
July 1 - September 30	1990	0.1	0.7	0.4	0.6	0.6
October 1 - December 31	1990	0.6	0.9	-0.4	0.9	0.5
January 1 - March 31	1991	0.0	0.1	-0.4	-0.1	-0.1
April 1 - June 30	1991	0.3	-0.1	0.3	0.3	0.1
July 1 - September 30	1991	0.0	0.4	0.1	0.3	0.3
October 1 - December 31	1991	0.2	0.3	0.2	0.3	0.2
January 1 - March 31	1992	0.3	0.1	0.0	0.4	0.2
April 1 - June 30	1992	1.1	0.3	0.2	0.3	0.3
July 1 - September 30	1992	0.3	0.1	0.0	0.0	0.0
October 1 - December 31	1992	0.3	0.3	-0.2	0.2	0.1
January 1 - March 31	1993	0.2	0.5	0.0	0.2	0.2
April 1 - June 30	1993	0.3	0.7	0.3	0.3	0.4
July 1 - September 30	1993	-0.2	0.5	0.2	0.5	0.4

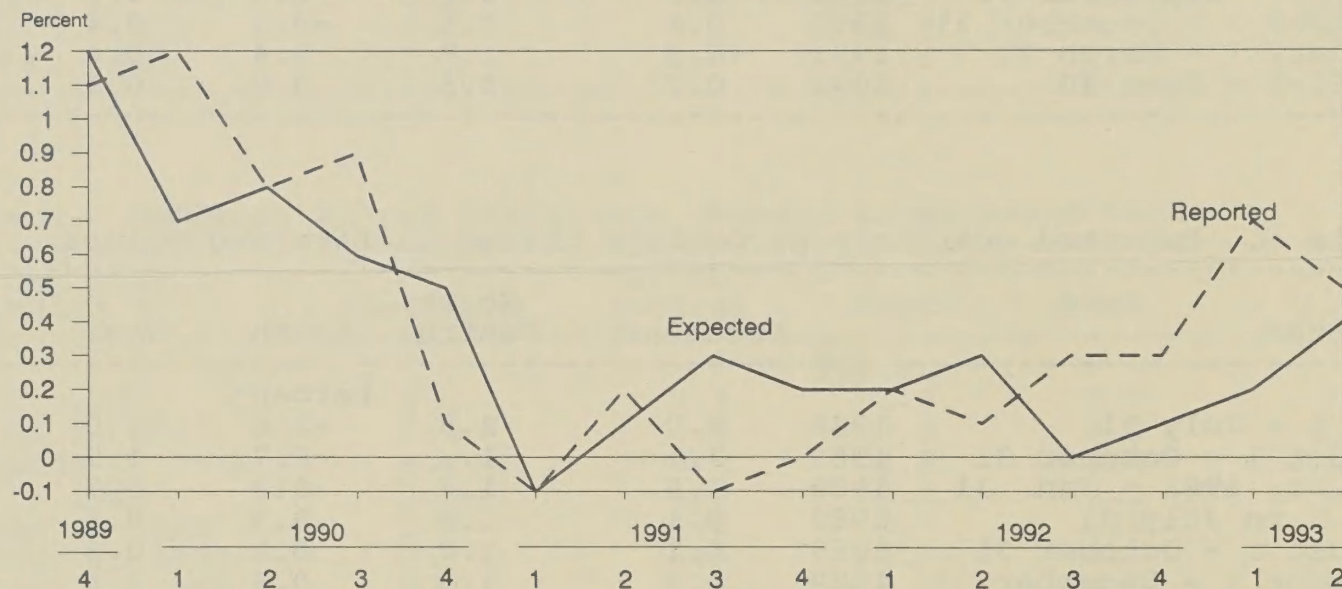
\* Expectations were formed at the beginning of the quarter.

Source: The Survey of Rural Appraisers, Econ. Res. Serv., USDA.

### Expected Annual Changes in U.S. Farmland Values Compared With Reported Changes 12 Months Later



### Expected Quarterly Changes in U.S. Farmland Values Compared With Reported Changes 3 Months Later



Source: The Survey of Rural Appraisers, Econ. Res. Serv., USDA.

RTD Updates  
Resources and Technology Division  
1301 New York Ave., NW.  
Washington, DC 20005-4788



# UPDATES: Area Studies

## Data updates from the Resources and Technology Division

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Economic Research Service  
U.S. Department of Agriculture

August 1993

### Agricultural Production and Natural Resource Data Linked in Lower Susquehanna River Basin Study

The Area Study project is a data collection and modeling effort designed to assess national policy impacts. The focus is on the development of multi-year, farm-level data that link production activities to environmental characteristics for selected regions. The effort involves the Economic Research Service (ERS), the Soil Conservation Service (SCS), U.S. Geological Survey (USGS), and the National Agricultural Statistics Service (NASS).

A survey was developed to collect detailed information on production technologies, cropping systems, and agricultural practices at both the field and whole farm level. The survey sample points were chosen to correspond with National Resource Inventory (NRI) sample points. SCS conducts an NRI every 5 years, collecting soil, water, and other natural resource data for nearly a million sample sites nationwide. The use of the NRI points thus establishes a link between production

activities and related resource characteristics.

The sites chosen were selected from those included in USGS's National Water Quality Assessment Program (NAWQA) and were areas with significant cropland and agricultural chemical use levels. Four areas were chosen in 1991: the Central Nebraska Basins, the White River Basin (Indiana), the Lower Susquehanna Basin (Pennsylvania), and the Mid Columbia Basin (Washington).

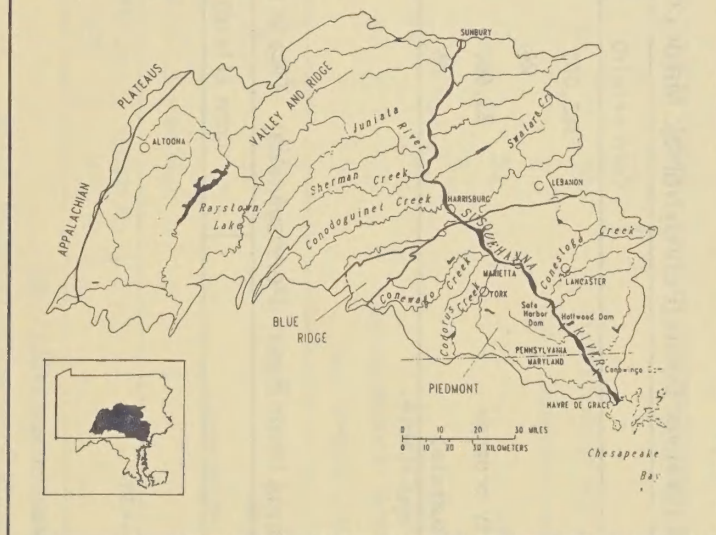
This issue of **RTD UPDATES** summarizes the Lower Susquehanna River Basin Area Study survey data. It includes information on conservation practices, pest and nutrient management practices, chemical use, tillage methods, and farm type by sales class. In addition, soil characteristics were used to construct a soil leaching potential index for the area.

Contact: L. Nodine or R. Keim, RTD (202) 219-0402.

#### Data Releases Planned

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#### Lower Susquehanna River Basin Survey Area



The Lower Susquehanna River Basin study area is approximately 9,200 square miles, primarily in southeastern Pennsylvania. About 35 percent of the basin is engaged in agricultural activities.



# Lower Susquehanna River Basin (Pennsylvania): Major crop production, 1991

Item	Corn (Field)	Corn (Silage)	Soybeans	Wheat	Alfalfa	Hay	Pasture
Acres in crop	363,005	176,132	91,830	65,684	264,541	151,335	245,342
% Acres in crop	24	12	6	4	17	10	16
Acres in commodity program	33,600	N/A	N/A	9,800	N/A	N/A	N/A
Yield per acre (bushels)	66	8 (tons)	30	46	3 (tons)	2 (tons)	N/A

N/A indicates not applicable.

# Lower Susquehanna River Basin (Pennsylvania): Tillage types, 1991

Item	Corn (Field)	Corn (Silage)	Soybeans	Wheat	All tilled land
Conservation tillage:					
No-till	63		57	48	47
Mulch/other conservation till	26		16	13	3
Conventional tillage:					
Moldboard plow	37		41	35	44
Other conventional	37		43	52	53
	31		40	33	49
	6		3	19	4

Percent of acres in crop

# Lower Susquehanna River Basin (Pennsylvania): Conservation practices, 1991

Practice	Corn (Field)	Corn (Silage)	Soybeans	Wheat	Alfalfa	Hay	Pasture
Chiseling and subsoiling	31	37	41	30	8	N/A	N/A
Cover or green manure crop	20	23	20	22	17	14	N/A
Crop residue use	44	39	52	40	15	7	20
Grassed waterways	33	26	33	38	20	10	5
Stripcropping	49	48	37	64	42	37	N/A
Pasture and hay management	N/A	N/A	N/A	N/A	35	18	15
Planned grazing system	N/A	N/A	N/A	N/A	N/A	N/A	15
Rotations	76	74	73	90	61	43	N/A

Percent of acres in crop

N/A indicates not applicable.



# Lower Susquehanna River Basin (Pennsylvania): Pest management practices, 1991

Practice	Corn (Field)	Corn (Silage)	Alfalfa
Percent of acres in crop			
Type of pest management:			
Biological pest control	3	4	3
Pest resistant varieties	16	5	20
Non-pesticidal sprays	1	1	1
Reduced pesticide rate/applications	19	16	30
Source of pest management:			
On-farm pest specialist	5	2	3
Extension/univ./State/Federal	4	5	7
Chemical dealer	41	34	33
Professional scout	8	11	8

# Lower Susquehanna River Basin (Pennsylvania): Nutrient management practices, 1991

Practice	Corn (Field)	Corn (Silage)	Alfalfa
Percent of acres in crop			
Type of nutrient management:			
Soil nitrogen test	14	23	12
Tissue analysis	1	0	2
Factor influencing nitrogen use:			
Fertilizer company recommendation	13	19	17
Consultant recommendation	5	13	6
Crop appearance	19	11	12
Soil/tissue test	14	21	17
Extension service recommendation	6	9	1
Standard amount for crop/rotation	25	10	19
Manure usage	63	91	61
Manure application based on analysis	6	17	3

# Lower Susquehanna River Basin (Pennsylvania): Pesticide use, 1991

Practice	Corn (Field)		Corn (Silage)		Alfalfa	
	Lbs/acre/ year	Percent of acres	Lbs/acre/ year	Percent of acres	Lbs/acre/ year	Percent of acres
Herbicides:						
2,4-D	0.5	12	--	--	*	*
Alachlor	2.0	14	1.8	13	--	--
Atrazine	1.6	76	1.6	64	--	--
Cyanazine	1.6	21	1.7	30	*	*
Dicamba	--	--	0.4	14	*	*
Metolachlor	1.8	53	1.9	41	--	--
Pendimethalin	1.2	25	1.3	37	*	*
Insecticides:						
Carbofuran	1.2	6	--	--	--	--
Chlorpyrifos	--	--	--	--	1.2	40
Dimethoate	*	*	*	*	0.6	35
Permethrin	0.1	6	*	*	0.3	20
Terbufos	0.9	8	--	--	*	*

-- indicates too few observations for estimation, \* indicates no use reported.

# Lower Susquehanna River Basin (Pennsylvania): Commercial fertilizer use, 1991

Item	Corn (Field)		Corn (Silage)		Alfalfa	
	Lbs/acre/ year	Percent of acres	Lbs/acre/ year	Percent of acres	Lbs/acre/ year	Percent of acres
Nitrogen	66	91	58	84	7	25
Phosphorous	46	87	42	82	41	67
Potassium	36	84	32	75	93	69

# Lower Susquehanna River Basin (Pennsylvania): Farms by sales class and farm type, 1991

Value of agricultural sales	Cash grains	Beef/hogs & sheep	Dairy	Poultry & other livestock	Fruits & Vegetables	Other
Percent						
0-\$9,999	20	26	1	28	40	53
\$10,000-\$19,999	10	15	0	3	13	12
\$20,000-\$29,999	4	5	1	8	13	6
\$30,000-\$39,999	6	7	4	0	0	0
\$40,000-\$59,999	8	6	5	8	7	0
\$60,000-\$99,999	24	9	27	35	13	6
\$100,000-\$249,999	13	16	39	13	7	18
\$250,000-\$499,999	11	7	17	5	0	6
\$500,000 and up	5	9	7	3	7	0
Share of total	17	18	50	8	3	4

Note: Percentages may not add due to rounding.

## Lower Susquehanna River Basin (Pennsylvania): Soil leaching potential index\*

Soil leaching potential	Corn (Field)	Corn (Silage)	Soybeans	Wheat	Alfalfa	Hay	Pasture	Share of agricultural land
Percent of acres in crop								Percent
Very high	0	0	0	0	0	0	0	0
High	13	18	17	24	12	13	9	12
Moderate	26	31	32	32	26	38	41	33
Low	46	43	42	39	53	49	42	47
Very low	2	0	0	0	0	0	0	1
Unknown	13	8	9	5	9	0	8	7

Soil leaching potential (SLP) = texture component + organic matter component + pH component

\* Potential of soils to leach highly soluble chemicals, based on intrinsic soil properties. Algorithm developed by J.B. Weber and R.L. Warren, North Carolina State University, in Weber, J.B. and R.L. Warren. "Herbicide Behavior in Soils: A Pesticide/Soil Ranking System for Minimizing Groundwater Contamination" Proceedings of the Northeastern Weed Science Society Vol. 46, 1992.

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U.S. Department of Agriculture

1301 New York Avenue, N.W., Room 524

Washington, DC 20005-4788